Group B: Survey/Mapping Breakout Session (Wednesday, July 20th at 9:40am ET)

Reminder!!

Respond to Polling Questions:

1. Scan the QR code using your mobile device or;

2. Type the following link into any web browser:

bit.ly/3z6HgGO

Question: 1

What technical barriers exist with today's best subsurface characterization techniques that prohibit them from detecting various pre-installed infrastructure and other unmapped obstructions at a depth of 3-6' important to undergrounding electricity distribution systems?

Question: 2

Should subsurface characterization be performed prior to or concurrently with undergrounding in order to most cost-effectively convert an overhead three-phase main feeder line to underground in a highly populated urban area? What are the pros and cons of each?

Question: 3

What new technologies, such as quantum sensing, muongeotomography, or a combination of existing technologies (e.g., GPR, seismic), might dramatically improve shallow subsurface characterization? What are the potential technical challenges in the context of underground distribution power lines in urban areas?

Question: 4

What technical challenges would need to be overcome in order to create a drill-mountable 'look-ahead' tool capable of detecting a 1"D metallic/non-metallic object at least 36" away from the drill while in operation?

Question: 5

Would developing the aforementioned 'look-ahead' proximity sensor be an easy/reasonable/aggressive target in a 3-year R&D project (average ARPA-E project timeline)?

Question: 6

How should novel subsurface characterization methods and systems be evaluated objectively in order to de-risk technologies and market adoption?

Question: 7

How important is the information about the location of underground utilities and obstacles during the drill path planning stage? Is there a depth at which this is not an issue?

Question: 8

How can we ensure that installed underground power distribution systems are not destroyed by a 3rd party (for example, backhoes contacting or damaging power conduits/cables)?

Question: 9

What fraction of urban undergrounding jobs requires characterizing the subsurface for geology and obstacles (i.e., metallic and non-metallic objects)?

Question: 10

Are there other applications that could benefit from new underground sensing tools developed in this potential program?

Poll Question: 1

Which of the following subsurface survey/mapping capabilities would have the greatest impact on underground power distribution construction cost reduction?

a) **Look-ahead**
b) **Measure-while-drilling (e.g. changes in torque, measure local temperature behind)**
c) **Accurate subsurface mapping at pre-design state**
d) **Other (specify)**

Poll Question: 2

Rank the most important technical difficulties to detecting underground obstacles

a) Soil conditions
b) Traffic
c) Background interference such as noise and magnetic objects
d) Surface access requirements
e) Cost
f) Speed
g) Skilled labor
h) Data transmission and processing
i) Resolution to detect objects
j) Depth

Reminder: Q&A Metrics Table Link for Construction and Surveying

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https://bit.ly/3OuMvEZ